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10/537,321	03/10/2006	Wolfgang Harazim	RWS-P264	3223

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EXAMINER	
BUI, DUNG H	

ART UNIT	PAPER NUMBER
1797	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/537,321	HARAZIM, WOLFGANG	
	Examiner	Art Unit	
	DUNG BUI	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *18 November 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-28* is/are pending in the application.

4a) Of the above claim(s) *29-61* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17,20,21,24,25 and 28* is/are rejected.

7)☒ Claim(s) *18,19,22,23,26 and 27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 March 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/10/05,8/30/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Invention I, Claims 17-28 in the reply filed on November 18th, 2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Claims 29-61 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 18th, 2008.

Claim Objections

3. Claim 1 is objected to because of the following informalities:

Claim 1, line10 recites "a axial". Should be replaced with "an axial". Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 17, 21, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamai et al (US 3,915,673) in view of Nagyszalanczy (4,832,709) and Wikdahl (US 4,092,130).

Regarding claim 17, Tamai et al discloses the claimed invention for a method for separating gas mixtures with a gas centrifuge, wherein a compressible process fluid is introduced into a double-walled rotor and the process fluid is compressed and separated due to centrifugal forces, wherein gas molecules with a relatively higher molecular weight contained in the gas mixture are enriched along an outer wall of the rotor, and portions of the process fluid with mutually different contents of the components contained in the gas mixture are carried away separately (Tamai et al - abstract).

Also regarding claim 17, Tamai et al does not disclose introducing the process fluid from an axial central supply tube into a widening enveloping area of the compression area of a double-walled centrifuge rotor, with a gas mass flow being shaped and positively guided on a circular path as an axial distance increases through the flow channels in the compression area. Nagyszalanczy teaches that it is know to have introducing the process fluid from an axial central supply tube into a widening enveloping area of the compression area of a double-walled centrifuge rotor, with a gas mass flow being shaped and positively guided on a circular path as an axial distance

increases through the flow channels in the compression area (Nagyszalanczy – figure 1, ref. 22). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have introducing the process fluid from an axial central supply tube into a widening enveloping area of the compression area of a double-walled centrifuge rotor, with a gas mass flow being shaped and positively guided on a circular path as an axial distance increases through the flow channels in the compression area as taught by Nagyszalanczy in order to increase surface centrifugal area.

Also regarding to claim 17, Tamai et al as modified discloses the claimed invention for carrying the process fluid with a constant flow cross section in a centrifuged state in the double tube in flow channels in the area of the double-walled centrifuge rotor remote from the axis (Tamai et al – figure 6, refs. 60-63).

Also regarding to claim 17, Tamai et al as modified does not disclose the claimed invention for in the centrifuged state, separating the gas flow into a relatively heavy gas fraction and a relatively light gas fraction at a separating threshold dependent on a proportion by volume of the individual gases. It would be obvious to one having ordinary skill in the art at the time the invention was made to inherent in the centrifuged state, separating the gas flow into a relatively heavy gas fraction and a relatively light gas fraction at a separating threshold dependent on a proportion by volume of the individual gases, since this is how rotor-separator work.

Also regarding to claim 17, Tamai as modified discloses the claimed invention except for positively guiding, braking and carrying away the separate gas fractions separately with decreasing axial distance in the flow channels upstream of a transition

from an area remote from the axis to the expansion area, as seen in a flow direction. Wikdahl teaches that it is known to have positively guiding, braking and carrying away the separate gas fractions separately with decreasing axial distance in the flow channels upstream of a transition from an area remote from the axis to the expansion area, as seen in a flow direction (Wikdahl – figure 1, ref. 4). It would have been obvious to one having ordinary skill in the art at the time the invention was make to have positively guiding, braking and carrying away the separate gas fractions separately with decreasing axial distance in the flow channels upstream of a transition from an area remote from the axis to the expansion area, as seen in a flow direction as taught by Wikdahl in order to concentrate the flow channels.

Also regarding claim 17, Tamai et al as modified discloses the claimed invention except for wherein an acceleration of the gas molecules in the compression area and the braking of the gas fractions in the expansion area are proportional to the mass. It would have been obvious to one having ordinary skill in the art at the time the invention was made to inherent an acceleration of the gas molecules in the compression area and the braking of the gas fractions in the expansion area are proportional to the mass.

Regarding claim 21, Tamai et al discloses the claimed invention for a method for separating gas mixtures with a gas centrifuge, wherein a compressible process fluid is introduced into a double-walled rotor and the process fluid is compressed and separated due to centrifugal forces, wherein gas molecules with a relatively higher molecular weight contained in the gas mixture are enriched along an outer wall of the rotor, and portions of the process fluid with mutually different contents of the

components contained in the gas mixture are carried away separately (Tamai et al - abstract).

Also regarding claim 21, Tamai et al does not disclose introducing the process fluid from an axial central supply tube into a widening enveloping area of the compression area of a double-walled centrifuge rotor. Nagyszalanczy teaches that it is know to have introducing the process fluid from an axial central supply tube into a widening enveloping area of the compression area of a double-walled centrifuge rotor (Nagyszalanczy – figure 1, ref. 22). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have introducing the process fluid from an axial central supply tube into a widening enveloping area of the compression area of a double-walled centrifuge rotor as taught by Nagyszalanczy in order to increase surface centrifugal area.

Also regarding claim 21, Tamai et al as modified discloses the claimed invention except a flow cross section for the process fluid being proportional to a volume flow in the flow channels in the compression area. It would have been obvious to one having ordinary skill in the art at the time the invention was made to inherent a flow cross section for the process fluid being proportional to a volume flow in the flow channels in the compression area.

Also regarding claim 21, Tamai et al as modified discloses the claimed invention except carrying the process fluid, in the area of the double-walled centrifuge rotor remote from the axis, in the double tube in flow channels in proportion to the volume flow with a reducing flow cross section. It would have obvious to one having ordinary

skill in the art at the time the invention was made to inherent carrying the process fluid, in the area of the double-walled centrifuge rotor remote from the axis, in the double tube in flow channels in proportion to the volume flow with a reducing flow cross section.

Also regarding claim 21, Tamai et al as modified discloses the claimed invention except separating the process fluid into a relatively heavy and into a relatively light gas fraction at a separating threshold, arranged concentrically as a function of a proportion by volume of individual gases, upstream of a transition from the area remote from the axis to an expansion area of the double-walled centrifuge rotor, as seen in a flow direction. It would have been obvious to one having ordinary skill in the art at the time the invention was made to inherent separating the process fluid into a relatively heavy and into a relatively light gas fraction at a separating threshold, arranged concentrically as a function of a proportion by volume of individual gases, upstream of a transition from the area remote from the axis to an expansion area of the double-walled centrifuge rotor, as seen in a flow direction.

Regarding claim 25, Tamai et al discloses the claimed invention for a method for separating gas mixtures with a gas centrifuge, wherein a compressible process fluid is introduced into a double-walled rotor and the process fluid is compressed and separated due to centrifugal forces, wherein gas molecules with a relatively higher molecular weight contained in the gas mixture are enriched along an outer wall of the rotor, and portions of the process fluid with mutually different contents of the components contained in the gas mixture are carried away separately (Tamai et al - abstract).

Also regarding claim 25, Tamai et al does not disclose introducing the process fluid from an axial central supply tube into a widening enveloping area of the compression area of a double-walled centrifuge rotor. Nagyszalanczy teaches that it is know to have introducing the process fluid from an axial central supply tube into a widening enveloping area of the compression area of a double-walled centrifuge rotor (Nagyszalanczy – figure 1, ref. 22). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have introducing the process fluid from an axial central supply tube into a widening enveloping area of the compression area of a double-walled centrifuge rotor as taught by Nagyszalanczy in order to increase surface centrifugal area.

Also regarding claim 25, Tamai et al as modified discloses the claimed invention except a flow cross section for the process fluid being inversely proportional to a pressure in the flow channels in the compression area. It would have been obvious to one having ordinary skill in the art at the time the invention was made to inherent a flow cross section for the process fluid being inversely proportional to a pressure in the flow channels in the compression area.

Also regarding claim 25, Tamai et al as modified discloses the claimed invention except for in the area of the double-walled centrifuge rotor remote from the axis, carrying the process fluid in a double tube in flow channels with a flow cross section decreasing in inverse proportion to a pressure. It would have obvious to one having ordinary skill in the art at the time the invention was made to inherent in the area of the double-walled centrifuge rotor remote from the axis, carrying the process fluid in a

double tube in flow channels with a flow cross section decreasing in inverse proportion to a pressure.

Also regarding claim 25, Tamai et al as modified discloses the claimed invention except for separating the process fluid into a relatively heavy and into a relatively light gas fraction at a separating threshold located concentrically as a function of a proportion by volume of the individual gases, upstream of a transition from the area remote from the axis to the expansion area of the double-walled centrifuge rotor, as seen in a flow direction. It would have been obvious to one having ordinary skill in the art at the time the invention was made to inherent separating the process fluid into a relatively heavy and into a relatively light gas fraction at a separating threshold located concentrically as a function of a proportion by volume of the individual gases, upstream of a transition from the area remote from the axis to the expansion area of the double-walled centrifuge rotor, as seen in a flow direction.

7. Claims 20, 24, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamai et al (US 3,915,673) as modified Nagyszalanczy (4,832,709) and Wikdahl (US 4,092,130) as applied to claim 17, and further in view of Graff et al (US 6,716,269).

Regarding claims 20, 24, and 28, Tamai et al discloses the claimed invention except for carrying the individual fractions of the gas mixture in flow channels separately from one another in the expansion area, and introduced the individual fractions separately into the central outlet tube. Graff et al teaches that it is known to have carrying the individual fractions of the gas mixture in flow channels separately from one

another in the expansion area, and introduced the individual fractions separately into the central outlet tube (Graff et al – figure 1, ref. 110). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have carrying the individual fractions of the gas mixture in flow channels separately from one another in the expansion area, and introduced the individual fractions separately into the central outlet tube as taught by Graff et al in order to reduce cavitations effect compared to side outlet.

Allowable Subject Matter

8. Claims 18-19, 22-23, and 26-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

Claims 18, 22, and 26 contain allowable subject matter because prior art does not teach fairly suggested carrying the process fluid in flow channels formed between webs extending parallel to the axis, in the double-walled centrifuge rotor.

Claims 19, 23, and 27 contain allowable subject matter because prior art does not teach fairly suggested using axial fans in a central supply tube and/or in a central outlet tube, with a differential pressure increased in order to overcome flow losses of the process fluid throughout an entire centrifuge.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUNG BUI whose telephone number is (571)270-7077. The examiner can normally be reached on Mon. - Thurs., 7:30 a.m.-5 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571)272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Duane S. Smith/
Supervisory Patent Examiner, Art Unit 1797

DB